WHAT IS CLAIMED IS

1. In a method of heat treating a tool steel workpiece the steps of

providing a heat treatment furnace of a size suitable to receive a tool steel workpiece to be heat treated,

providing a heat source in the interior of the furnace consisting of a source of infrared heat energy, and

subjecting the tool steel workpiece to heat treatment by exposing said tool steel workpiece to infrared heat energy from the infrared heat energy source.

2. The method of claim 1 further characterized in that

the infrared heat energy source is tungsten halogen lamp means.

3. The method of claim 2 further characterized in that

the tungsten halogen lamp means is capable of generating a temperature of up to 5000°F in tool steel workpieces located in close proximity thereto.

4. The method of claim 1 further characterized by and including the step of

providing a coating of reflective material over at least some of the interior surface of the furnace.

5. The method of claim 4 further characterized in that

the material of which the reflective surface is comprised is selected from the group consisting of gold, silver and aluminum.

6. The method of claim 1 further including the step of

providing a ceramic or other high melting point support structure to support the tool steel

workpiece.

7. The method of claim 15 further including the step of

providing an air atmosphere in the furnace.

8. The method of claim 15 further including the step of

providing a non-air environment in the furnace.

9. The method of claim 15 further including the step of

providing a vacuum environment in the furnace.

10. In a system for heat treating tool steel,

a furnace,

support structure for tool steel workpieces to be heat treated in the furnace, and

a source of infrared heat energy arranged within the furnace to direct infrared heat energy against tool steel workpieces in the furnace.

11. The tool steel heat treat system of claim 10 further characterized in that

the source of infrared heat energy is tungsten halogen lamp means.

12. The tool steel heat treat system of claim 11 further including

a reflective coating on the interior of the furnace over at least some of said interior surface which the infrared heat energy is exposed to.

13. The tool steel heat treat system of claim 12 further characterized in that the coating is formed from one or more of the metals in the group consisting of gold, silver and aluminum.

14. The tool steel heat treat system of claim 11 further including

ceramic or other high melting point support structure to support the tool steel workpiece in the furnace.

ADD A', A², A³